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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,051	02/19/2004	Rory L. Van Tuyl	10040010-1	5731

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EXAMINER	
MARTINEZ, JOSEPH P	

ART UNIT	PAPER NUMBER
2873	

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/782,051	VAN TUYL, RORY	
	Examiner	Art Unit	
	Joseph P. Martinez	2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5,7-15 and 17-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5,7-15 and 17-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 15 and 18 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Ford et al. (5966234).

Re claim 15, Ford et al. teaches for example in fig. 1, 4A and 4B, a method of remote delivery of a modulated signal, said method comprising: modulating an input light beam with an electrical signal using optical signal modulation (col. 3, ln. 46-50); reflecting (via 404) said modulated light beam into an output light beam direction different from that of said input light beam (col. 5, ln. 64-67 to col. 6, ln. 1); and concurrently modulating said electrical signal by interacting with said input light beam using electroabsorption modulation (col. 4, ln. 5-8).

Re claim 18, Ford et al. further teaches for example in fig. 1, 4A and 4B, said output light beam and said input light beam propagate in opposite directions through a single optical fiber (col. 5, ln. 64-67 to col. 6, ln. 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 3, 5, 7, 8-11, 13 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ford et al. (5966234) in view of Yamada (6330089).

Re claim 1, Ford et al. teaches for example in fig. 1, 4A and 4B, an optoelectronic system comprising: an optical signal modulator (200); an optical input guide (410; col. 4, ln. 10-11 and col. 5, ln. 62) and an optical output guide connected to said optical signal modulator (col. 4, ln. 10-11 and col. 5, ln. 62); a reflective optical element (404) in said optical signal modulator, said element disposed to reflect an input light beam (401) incident through said optical input guide into an output light beam through said optical output guide; and an electrical terminal (105, 106) in said optical signal modulator, said electrical terminal configured such that an electrical signal on said electrical terminal is operable to interact with said input light beam (col. 3, ln. 46-50), wherein said optical signal modulator is an electroabsorption modulator (EAM) (col. 4, ln. 5-8), wherein said optical input guide and said optical output guide are a single optical guide (fig. 4A).

But, Ford et al. fails to explicitly teach an optical circulator in communication with said single optical guide, said circulator adapted to receive said input light beam along a

first path, to pass said input light beam to said EAM, and to pass said output light beam along a second path different from said first path.

However, within the same field of endeavor, Yamada teaches for example in fig. 1, an optical circulator (14) in communication with said single optical guide (16b, 16c), said circulator adapted to receive said input light beam along a first path (14a), to pass said input light beam to said EAM (fig. 1), and to pass said output light beam along a second path different from said first path (14c).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Ford et al. with the circulator of Yamada in order to provide a reduced number of optical components for multiple optical paths.

Re claim 22, Ford et al. teaches for example in fig. 1, 4A and 4B, an optoelectronic system comprising: an optical intensity modulator (col. 2, ln. 59-64); an optical input guide and an optical output guide connected to said optical intensity modulator (col. 4, ln. 10-11 and col. 5, ln. 62), wherein said optical input guide and said optical output guide are a single optical guide (fig. 4A); a reflective optical element (404) in said optical intensity modulator, said element disposed to reflect an input light beam incident through said optical input guide into an output light beam through said optical output guide (col. 5, ln. 64-67 to col. 6, ln. 1); and an electrical terminal (105, 106) in said optical intensity modulator, said electrical terminal configured such that an

electrical signal on said electrical terminal is operable to interact with said input light beam (col. 3, ln. 46-50).

But, Ford et al. fails to explicitly teach an optical circulator in communication with said single optical guide, said circulator adapted to receive said input light beam along a first path, to pass said input light beam to said EAM, and to pass said output light beam along a second path different from said first path.

However, within the same field of endeavor, Yamada teaches for example in fig. 1, an optical circulator (14) in communication with said single optical guide (16b, 16c), said circulator adapted to receive said input light beam along a first path (14a), to pass said input light beam to said EAM (fig. 1), and to pass said output light beam along a second path different from said first path (14c).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Ford et al. with the circulator of Yamada in order to provide a reduced number of optical components for multiple optical paths.

Re claim 3, Ford et al. further teaches for example in fig. 1, 4A and 4B, said electrical signal is operable to interact to modulate said output beam (col. 3, ln. 46-50).

Re claims 5 and 23, Ford et al. further teaches for example, said input light beam is operable to interact to modulate said electrical signal (col. 4, ln. 2-27).

Re claim 7, Ford et al. further teaches for example in fig. 5, a plurality of EAMs interconnected electrically in a balanced parallel configuration (col. 6, ln. 9-13).

Re claim 8, Ford et al. further teaches for example in fig. 1, said electrical terminal is coupled to a voltage source (110) through contacting probes (103, 104).

Re claims 9-11, supra claim 1. Furthermore, Ford et al. further teaches for example in fig. 1, said electrical terminal (105, 106) is coupled to a voltage source (110).

But, Ford et al. fails to explicitly teach non-contacting probe tips, an impedance matching network or an electromagnetic wave directional coupler.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide various ways to couple an electrical terminal with a voltage source, since contacting probes tips and non-contacting probe tips, an impedance matching network or an electromagnetic wave directional coupler are known equivalents in the art and the selection of any of these known equivalents would be within the level of ordinary skill in the art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Ford et al. to include various ways to couple an electrical terminal with a voltage source in order to ease manufacturing by including various cost effective options.

Re claim 13, supra claim 1. Furthermore, Ford et al. further teaches for example in fig. 1, 4A and 4B, said system is operable to deliver a modulated signal (401) over an optical fiber (col. 5, ln. 37-40).

But, Ford et al. in view of Yamada fails to explicitly teach stimulating a remote electrical device with said modulated electrical signal.

However, Ford et al. teaches for example in fig. 4A, an optical output (401) for use in telecommunication systems. Official Notice taken. The office interprets a telecommunications system to include electrical devices that are optically connected, but not electrically connected, as is well known in a fiber optic telecommunication system.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Ford et al. in view of Yamada with stimulating a remote electrical device with said modulated electrical signal in order to provide a long distance telecommunication system.

Re claim 24, supra claim 15.

But, Ford et al. fails to explicitly teach a plurality of optical intensity modulators interconnected electrically in a differential configuration.

However, within the same field of endeavor, Yamada teaches for example in fig. 2, a plurality of optical intensity modulators (20, 22) interconnected electrically in a differential configuration.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Ford et al. with the teachings of Yamada in order to provide a time-division multiplexing transmitter.

2. Claims 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ford et al. (5966234) in view of Yamada (6330089) in further view of Lembo et al. (5402259).

Re claims 12 and 14, supra claims 1 and 13, respectively.

But, Ford et al. in view of Yamada fail to explicitly teach said system is operable to deliver a copy of an electrical signal from a remote electrical device to an electronic measurement instrument over an optical fiber, said input light beam delivers a replica of an electrical stimulus signal or said output light beam delivers a replica of an electrical response signal from a remote electrical device to an electronic measurement instrument.

However, within the same field of endeavor, Lembo et al. teaches for example in fig. 4, said system is operable to deliver a copy of an electrical signal (rf signal) from a remote electrical device (80) to an electronic measurement instrument (96) over an optical fiber (94), said input light beam delivers a replica of an electrical stimulus signal (input to 96) or said output light beam (output of 86) delivers a replica of an electrical response signal from a remote electrical device to an electronic measurement instrument (col. 6, ln. 9-31).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Ford et al. in view of Yamada with the teachings of Lembo et al. in order to provide a listening post.

3. Claims 17, 19-21 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ford et al. (5966234) in view of Lembo et al. (5402259).

Re claims 19, 20, 21 and 26, supra claim 15.

But, Ford et al. fails to explicitly teach said system is operable to deliver a copy of an electrical signal from a remote electrical device to an electronic measurement instrument over an optical fiber, said input light beam delivers a replica of an electrical stimulus signal or said output light beam delivers a replica of an electrical response signal from a remote electrical device to an electronic measurement instrument.

However, within the same field of endeavor, Lembo et al. teaches for example in fig. 4, said system is operable to deliver a copy of an electrical signal (rf signal) from a remote electrical device (80) to an electronic measurement instrument (96) over an optical fiber (94), said input light beam delivers a replica of an electrical stimulus signal (input to 96) or said output light beam (output of 86) delivers a replica of an electrical response signal from a remote electrical device to an electronic measurement instrument (col. 6, ln. 9-31).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Ford et al. with the teachings of Lembo et al. in order to provide a listening post.

Re claim 17, Lembo et al. further teaches for example in fig. 6, applying a bias voltage (100) concurrently with said electrical signal (102, 104).

4. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ford et al. (5966234).

Re claim 25, supra claim 15. Yamada further teaches for example in fig. 1, concurrently modulating said electrical signal comprises: delivering a modulated signal in said input light beam over an optical fiber (14b).

But, Ford et al. in view of Yamada fails to explicitly teach stimulating a remote electrical device with said modulated electrical signal.

However, Ford et al. teaches for example in fig. 4A, an optical output (401) for use in telecommunication systems. Official Notice taken. The office interprets a telecommunications system to include electrical devices that are optically connected, but not electrically connected, as is well known in a fiber optic telecommunication system.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Ford et al. in view of Yamada

with stimulating a remote electrical device with said modulated electrical signal in order to provide a long distance telecommunication system.

Response to Arguments

Applicant's arguments with respect to claims 1, 3, 5, 7, 8-14 and 22-24 have been considered but are moot in view of the new ground(s) of rejection.

Re Official Notice taken in the rejection of claims 13 and 25, the office provides Lembo et al. (5402259) (fig. 4) as documentary evidence that it is well known in an optical communication system, for a modulated signal (94) to stimulate a remote electrical device (96).

Re applicant's arguments on p. 9, wherein the applicant argues that the prior art does not disclose concurrently modulating said electrical signal by interacting with said input light beam using electroabsorption modulation, have been considered, but are not persuasive. Fig. 1, 4A and 4B clearly detail the p-i-n construction of the electroabsorption modulator, which is further detailed in col. 2, ln. 34-53 and col. 3, ln. 4-15. Furthermore, the indicated passage (col. 3, ln. 46-50), provided in the rejection of claim 15, explicitly teaches the "fundamental absorption versus the electric field performance of the material" is assumed.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

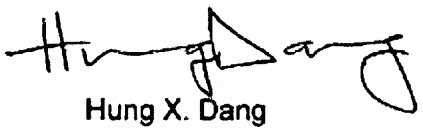
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph P. Martinez whose telephone number is 571-272-2335. The examiner can normally be reached on M-F 7:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on 571-272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPM
11-26-06



Hung X. Dang
Primary Examiner
TC 2800